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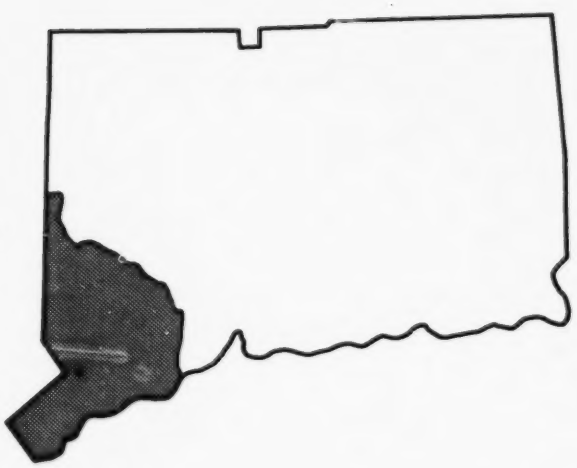
ORIGINAL

FLOOD INSURANCE STUDY

COMPLETED
74

TOWN OF WILTON, CONNECTICUT
FAIRFIELD COUNTY



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PUBLISHED SEPARATELY:

Flood Insurance Rate Map Index

Flood Insurance Rate Map

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Wilton, Fairfield County, Connecticut, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert Wilton to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these federally-supported studies are based. These criteria take precedence over the minimum federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3. In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by Philip W. Genovese and Associates for the Federal Emergency Management Agency, under Contract No. H-4711. This work was completed in May 1980.

1.3 Coordination

In April 1978, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives of the FEMA, the Town of Wilton, and Philip W. Genovese and Associates (the study contractor). Subsequent discussions were held with the Soil Conservation Service (SCS) and the State of Connecticut relative to the status of the SCS flood control plan for the Norwalk River watershed. On June 24, 1981, the results of the study were reviewed at a final CCO meeting attended by representatives of the FEMA, the town, and the study contractor.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Wilton, Fairfield County, Connecticut. The area of study is shown on the Vicinity Map (Figure 1).

The Norwalk River, Comstock Brook from its confluence with the Norwalk River to a point approximately 3.7 miles upstream, the West Branch Saugatuck River, and the East Branch Silvermine River were studied by detailed methods. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction for the next five years, through May 1985.

The following areas were studied by approximate methods: Boone Brook, the Silvermine River, Silver Spring Brook, East Branch Comstock Brook, Barretts Brook, Betten Hill Brook, Goetzen Brook, Mayapple Brook, Cobbs Mill Brook, Bryant Brook, Thayers Brook, several unnamed tributaries, Hendersons Pond, Kents Pond, Streets Pond, Domenicks Pond, Spruce Pond, Trails End Pond, Thayers Pond, Rock Lake, Old South Norwalk Reservoir, and South Norwalk Reservoir. Approximate methods of analysis were used to study those areas having low development potential and minimal flood hazards as identified at the initiation of the study. The scope and methods of study were proposed to and agreed upon by the FEMA.

2.2 Community Description

The Town of Wilton is located in the southwestern portion of Fairfield County in southwestern Connecticut. It is bordered by the Towns of Ridgefield and Redding to the north, the Town of Weston to the east, the City of Norwalk to the south, and the Town of New Canaan and the State of New York to the west.

Wilton had a population of 13,572 in 1970 and an estimated population of 17,300 in 1978 (References 1 and 2). State Routes 7, 33, and 103 serve as the major transportation routes through the town.

The topography of Wilton is hilly, with the only exception being the flat flood plain bordering the Norwalk River and State Route 7. The East Branch Silvermine River, the Norwalk River, and the West Branch Saugatuck River all flow north-south and are located in the northwest, central, and southeastern portions of the town, respectively. Comstock Brook flows more to the southeast in the central section of Wilton. Most of the business and commercial areas of the town are located along the Norwalk River, while the other streams studied by detailed methods are bordered mostly by residential development. The annual precipitation in Wilton

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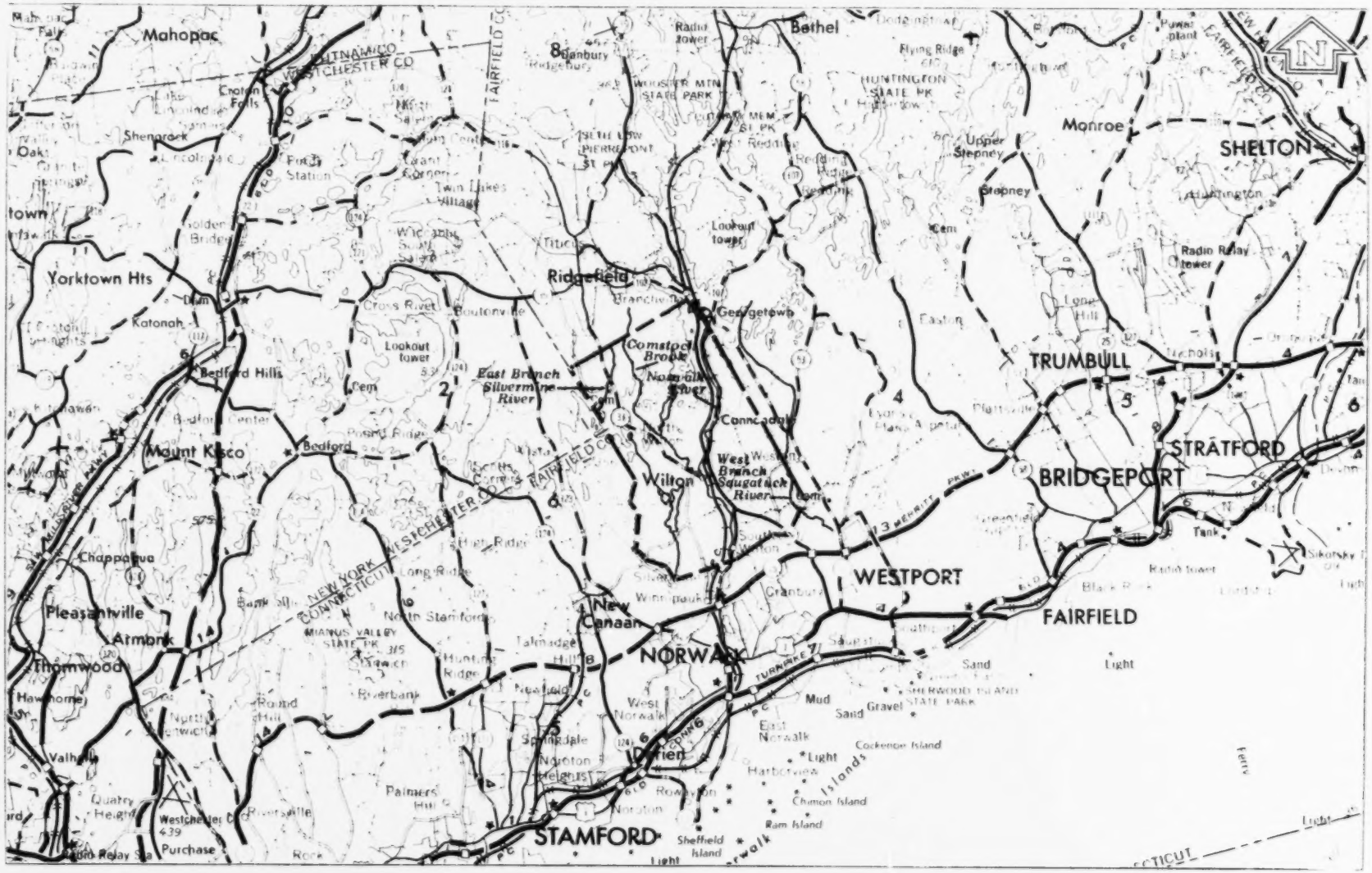

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

3

VICINITY MAP

averages 46 inches, with runoff accounting for 22 inches of that figure (Reference 3).

2.3 Principal Flood Problems

The history of flooding in Wilton indicates that there has been little basin-wide flooding, but a number of instances of localized flooding. Major floods occurred in September 1938, March 1953, August and October 1955, and January 1979. In 1965, the SCS estimated that the October 1955 flood (100-year recurrence interval) resulted in flood damage in excess of $1,310,000 (1965 dollars) in Wilton along the Norwalk River. Due to inflation and the increased development in the Norwalk River flood plain, that estimate was increased to roughly three times that level in 1975, and is higher now.

Figures 2, 3, and 4 show potential flood heights on the Norwalk River and the East Branch Silvermine River at three locations within the Town of Wilton.

2.4 Flood Protection Measures

The SCS has designed an entire system of flood control for the Norwalk River watershed, including five floodwater retarding structures and three lengths of channel improvement. In addition, the U. S. Army Corps of Engineers (COE) has proposed channel improvements starting between Wolfpit and Arrowhead Roads and continuing downstream into the Town of Norwalk (Reference 4).

Only two of the SCS dams have been constructed, one on Ridgefield Brook in Ridgefield and the other on Spectacle Brook (a tributary of Comstock Brook) in Wilton. SCS policy prohibits the construction of channel improvements until all floodwater retarding structures are in place, meaning the three sections of channel improvement, two of which are located in Wilton, are also unconstructed.

The COE is also awaiting the construction of the SCS projects prior to starting work on their channelization improvements. The reason for this delay is twofold. Initially, the SCS project required an Environmental Impact Statement which was finished in April 1976. More importantly, citizen opposition to the relocation of State Route 7 has led to a series of legal battles. Without the relocation of State Route 7, parts of the SCS and COE plans cannot be implemented, as they flood or cross parts of the existing State Route 7. Recent conversations with the SCS indicate that there is no evidence to indicate that any more construction will take place in the next five years (Reference 5). If this is the case, the natural 100-year flood flow of 4,380 cubic feet per second (cfs) at

Figure 2 - Potential flood heights on the Norwalk River (upstream) at Kent Road.

Figure 3 - Potential flood heights on the Norwalk River (upstream) at State Route 7.

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Figure 4 - Potential flood heights on the East Branch Silvermine River (upstream) at Ruscoe Road.

the Wilton-Ridgefield town boundary will only be decreased to 3,655 cfs rather than the expected 2,150 cfs if all parts of the plan were in place. The flood of October 1955 produced a peak discharge of 3,900 cfs at this location.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one-percent chance of annual occurrence) in any 50-year period is about 40 percent (four in ten) and, for any 90-year period, the risk

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increases to about 60 percent (six in ten). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

Peak discharges for the Norwalk River and Comstock Brook are a modification of the flows calculated by the SCS (Reference 6). The discharges were modified because it now appears that all of the SCS flood control structures will not be in place during the time period covered by this study. Therefore, the natural peak discharges calculated by the SCS have been modified to include only the effects of Ridgefield Brook Dam in Ridgefield and Spectacle Brook Dam (located on a tributary to Comstock Brook) in Wilton.

The SCS method of calculating peak discharges is based on curves which predict runoff based primarily on soil type and land use. This method classifies areas according to these parameters and then applies a 24-hour duration storm to it to determine runoff units. It then adjusts the resulting values based on watershed shape, channel slope, and the percentages of swampy and impervious areas to arrive at a peak discharge for the watershed (Reference 7). Discharges were then modified by the SCS by routing the subject storms through the floodwater retarding structures using Wilson's routing methods.

Peak discharges for the West Branch Saugatuck River and the East Branch Silvermine River were determined from U. S. Geological Survey (USGS) formulas for ungaged streams in Connecticut as developed by Lawrence Weiss (Reference 8). The formulas were the result of a log-Pearson Type III regression analysis performed on 107 stream gaging stations throughout Connecticut. The gaging stations have a mean record length of 34 years and are supplemented by close to 200 years of historical information. From this information, the skew and standard deviation for each of the gaging stations were calculated for the use in the flood flow equations, and a summary map of Connecticut was developed. This information along with other watershed parameters (channel slope, drainage area, stream length, rainfall intensity, and degree of urbanization) were used to arrive at peak discharges for the West Branch Saugatuck River and the East Branch Silvermine River. The parameters were taken from USGS topographic maps (Reference 9).

A summary of drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges".

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
NORWALK RIVER					
At Kent Road	30.0	2,980	5,840	7,455	12,505
Downstream of Comstock Brook	25.7	2,680	5,280	6,735	11,295
Upstream of Comstock Brook	18.4	1,845	3,660	4,675	7,840
Downstream of Gilbert and Bennett Brook	13.8	1,425	2,865	3,655	6,135
Upstream of Gilbert and Bennett Brook	12.3	1,205	2,445	3,125	5,240
COMSTOCK BROOK					
Above the confluence with the Norwalk River	4.96	1,050	1,590	1,865	2,625
Downstream of Barretts Brook	3.94	860	1,315	1,540	2,175
Upstream of Barretts Brook	3.75	690	1,045	1,225	1,725
Upstream of East Branch	2.68	510	775	910	1,275
WEST BRANCH SAUGATUCK RIVER					
At the downstream corporate limits	10.92	1,000	1,800	2,280	3,280
At Cedar Road	9.17	820	1,450	2,065	2,970
EAST BRANCH SILVERMINE RIVER					
At Ruscoe Road	3.47	390	760	1,020	1,465
At State Route 33	2.06	235	460	605	875

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of these flooding sources.

Cross-section data were obtained from field survey, previous reports, and aerial photographs (Reference 6, 10, and 11). All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Water-surface elevations of floods of the selected recurrence intervals were computed through the use of the COE HEC-2 step-backwater computer program (Reference 12). Starting water-surface elevations for the Norwalk River were obtained from the Flood Insurance Study for the City of Norwalk (Reference 13). Starting water-surface elevations for Comstock Brook were determined using critical depth. Starting water-surface elevations for the West Branch Saugatuck River were obtained from the Flood Insurance Study for the Town of Westport (Reference 14). Starting water-surface elevations for the East Branch Silvermine River were determined using the slope/area method.

Roughness factors (Manning's "n") used in the hydraulic computations were assigned on the basis of field inspection. The channel "n" values for all streams studied by detailed methods ranged from 0.015 to 0.070, and the overbank "n" values ranged from 0.025 to 0.075.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross-section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 3).

All elevations used in this study are referenced to the National Geodetic Vertical Datum of 1929 (NGVD), formerly referred to as Sea Level Datum of 1929. Locations of the elevation reference marks used in the study are shown on the maps.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are valid only if hydraulic structures remain unobstructed, and dams and other flood control structures operate properly and do not fail.

For the areas studied by approximate methods, the extent of the 100-year flooding was developed using normal depth calculations.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FEMA as the base flood for pur-

poses of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at a scales of 1:2,400 and 1:4,800 with a contour interval of 5 feet (Reference 15). In cases where the 100- and 500-year flood boundaries are close together, only the 100-year boundary has been shown.

For the areas studied by approximate methods, the boundary of the 100-year flood was delineated using the topographic maps referenced above.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 3). Small areas within the flood boundaries may lie above the flood elevations and, therefore, may not be subject to flooding. Owing to limitations of the map scale and lack of detailed topographic data, such areas are not shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood can be carried without substantial increases in flood heights. Minimum standards of the FEMA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the flood plains. The results of these computations are tabulated at selected cross sections for each stream segment for which a floodway is computed (Table 2).

As shown on the Flood Boundary and Floodway Map (Exhibit 3), the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown. Portions of the floodway widths of the West Branch Saugatuck River extend beyond the corporate limits.

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Norwalk River								
A	110	525	2,501	3.0	123.7	123.7	124.2	0.5
B	1,150	70	751	9.9	124.9	124.9	125.4	0.5
C	2,090	177	832	9.0	131.2	131.2	131.3	0.1
D	3,870	54	574	13.0	139.6	139.6	140.4	0.8
E	4,010	149	1,793	4.2	142.8	142.8	143.5	0.7
F	9,393	496	1,348	5.5	154.1	154.1	154.5	0.4
G	10,910	143	789	8.5	158.5	158.5	159.1	0.6
H	12,635	282	1,108	6.1	166.6	166.6	167.3	0.7
I	12,845	323	2,164	3.1	170.5	170.5	171.2	0.7
J	13,850	391	1,225	5.5	171.8	171.8	172.4	0.6
K	14,830	295	986	6.8	176.9	176.9	176.9	0.0
L	15,210	194	1,467	4.6	179.5	179.5	179.5	0.0
M	16,860	67	535	12.6	181.9	181.9	182.5	0.6
N	17,055	74	575	11.7	183.3	183.3	183.3	0.0
O	18,740	336	1,729	2.7	188.7	188.7	189.7	1.0
P	19,490	87	651	7.2	196.0	196.0	196.7	0.7
Q	21,540	71	608	7.7	200.2	200.2	201.0	0.8
R	23,225	213	1,213	3.9	209.0	209.0	209.6	0.6
S	24,145	301	1,401	3.3	211.2	211.2	211.8	0.6

[1]Feet above corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

NORWALK RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Norwalk River (continued)								
T	25,875	654	1,932	2.4	216.7	216.7	217.3	0.6
U	27,665	71	518	9.0	223.2	223.2	224.0	0.8
V	28,225	175	658	5.6	229.3	229.3	229.3	0.0
W	29,380	89	376	9.7	229.7	229.7	229.7	0.0
X	30,195	131	720	5.1	232.4	232.4	233.3	0.9
Y	30,975	76	423	8.6	234.0	234.0	234.8	0.8
Z	32,215	62	526	6.9	244.2	244.2	244.4	0.2
AA	34,100	51	416	8.8	250.2	250.2	250.6	0.4
AB	35,275	121	963	3.8	255.1	255.1	255.2	0.1
AC	35,840	140	553	6.6	255.9	255.9	255.9	0.0
AD	37,760	120	441	8.3	260.3	260.3	260.3	0.0
AE	38,335	250	1,524	2.4	263.1	263.1	263.3	0.2
AF	40,865	113	607	6.0	271.6	271.6	272.3	0.7
AG	42,510	55	434	8.4	280.7	280.7	281.2	0.5
AH	43,510	156	1,304	2.8	295.1	295.1	295.4	0.3
AI	48,950	98	317	9.9	334.6	334.6	334.6	0.0
AJ	49,910	103	747	4.2	339.0	339.0	339.5	0.5
AK	50,430	75	349	8.9	339.8	339.8	340.0	0.2

[1]Feet above corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

NORWALK RIVER

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Comstock Brook								
A	640	192	302	6.2	189.2	189.2	189.6	0.4
B	840	33	108	17.3	193.2	193.2	193.2	0.0
C	1,077	40	384	4.9	229.7	229.7	230.7	1.0
D	1,172	39	387	4.8	230.7	230.7	231.4	0.7
E	1,422	81	313	6.0	231.1	231.1	231.9	0.8
F	1,850	71	252	7.4	243.2	243.2	243.9	0.7
G	1,972	35	187	10.0	244.5	244.5	244.6	0.1
H	2,401	41	206	9.0	253.1	253.1	253.9	0.8
I	3,060	31	163	11.4	262.9	262.9	262.9	0.0
J	3,545	33	206	9.0	270.0	270.0	270.8	0.8
K	3,930	59	237	7.9	275.2	275.2	275.5	0.3
L	4,830	40	223	8.4	286.7	286.7	287.3	0.6
M	5,840	133	561	2.7	295.7	295.7	296.7	1.0
N	6,350	33	153	10.1	300.8	300.8	300.8	0.0
O	6,640	148	656	2.3	303.9	303.9	304.4	0.5
P	6,980	62	198	7.8	305.1	305.1	305.1	0.0
Q	7,525	64	212	7.3	309.3	309.3	309.7	0.4
R	7,870	68	306	5.0	313.4	313.4	313.4	0.0
S	8,520	125	200	7.7	316.8	316.8	316.8	0.0

[1]Feet above confluence with Norwalk River

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

13

COMSTOCK BROOK

BEST DOCUMENT AVAILABLE

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Comstock Brook (continued)								
T	8,680	89	461	3.3	320.4	320.4	321.2	0.8
U	9,640	98	294	5.2	322.8	322.8	323.4	0.6
V	10,350	359	1,671	0.9	324.0	324.0	324.5	0.5
W	11,050	297	418	3.7	324.6	324.6	325.2	0.6
X	11,320	481	1,460	1.1	325.8	325.8	326.6	0.8
Y	11,990	63	184	6.7	333.9	333.9	334.4	0.5
Z	12,470	20	100	12.3	340.0	340.0	340.7	0.7
AA	12,910	52	221	5.6	345.0	345.0	345.6	0.6
AB	13,810	27	134	9.1	358.1	358.1	358.1	0.0
AC	14,400	117	559	2.2	361.5	361.5	362.4	0.9
AD	15,350	255	1,029	0.9	362.1	362.1	362.9	0.8
AE	16,045	92	281	3.2	362.4	362.4	363.1	0.7
AF	17,155	100	301	3.0	366.3	366.3	367.0	0.7
AG	18,385	110	177	5.1	372.8	372.8	372.9	0.1
AH	18,760	33	61	14.9	380.5	380.5	380.5	0.0
AI	19,285	36	66	13.7	411.1	411.1	411.3	0.2

[1]Feet above confluence with Norwalk River

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

COMSTOCK BROOK

BEST DOCUMENT AVAILABLE

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
West Branch Saugatuck River								
A	810	95	611	3.7	95.3	95.3	96.0	0.7
B	2,579	112	311	7.3	107.3	107.3	107.4	0.1
C	2,832	62	305	7.5	109.4	109.4	109.4	0.0
D	3,082	83	285	8.0	114.9	114.9	114.9	0.0
E	3,540	132	352	6.5	123.8	123.8	123.9	0.1
F	3,800	173	730	3.1	125.7	125.7	126.0	0.3
G	5,000	102	263	8.7	129.9	129.9	129.9	0.0
H	5,200	178	408	5.6	131.1	131.1	131.4	0.3
I	5,882	71	252	9.0	133.9	133.9	133.9	0.0
J	6,510	133	752	3.0	137.8	137.8	138.0	0.2
K	7,775	99	276	8.2	142.7	142.7	142.7	0.0
L	8,275	137	243	8.5	157.0	157.0	157.1	0.1
M	8,687	235[2]	709	2.9	159.8	159.8	160.1	0.3

[1]Feet from corporate limits

[2]This width extends beyond corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

WEST BRANCH SAUGATUCK RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
East Branch Silvermine River								
A	970	182	354	3.1	504.7	504.7	505.0	0.3
B	1,690	16	83	13.1	512.7	512.7	512.7	0.0
C	2,950	120	476	2.3	515.7	515.7	516.6	0.9
D	3,160	47	127	8.6	516.9	516.9	516.9	0.0
E	3,750	82	296	3.5	518.2	518.2	518.7	0.5
F	4,010	26	97	10.5	518.7	518.7	518.7	0.0
G	4,170	81	256	4.0	520.5	520.5	521.1	0.6
H	5,905	16	92	6.6	546.6	546.6	546.6	0.0
I	6,990	96	427	1.4	548.3	548.3	548.8	0.5
J	7,735	80	399	1.5	549.6	549.6	550.2	0.6
K	8,360	89	378	1.6	551.6	551.6	552.1	0.5
L	9,480	33	168	3.6	552.6	552.6	553.5	0.9
M	11,535	99	105	5.8	558.5	558.5	558.6	0.1

[1]Feet above corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOODWAY DATA

EAST BRANCH SILVERMINE RIVER

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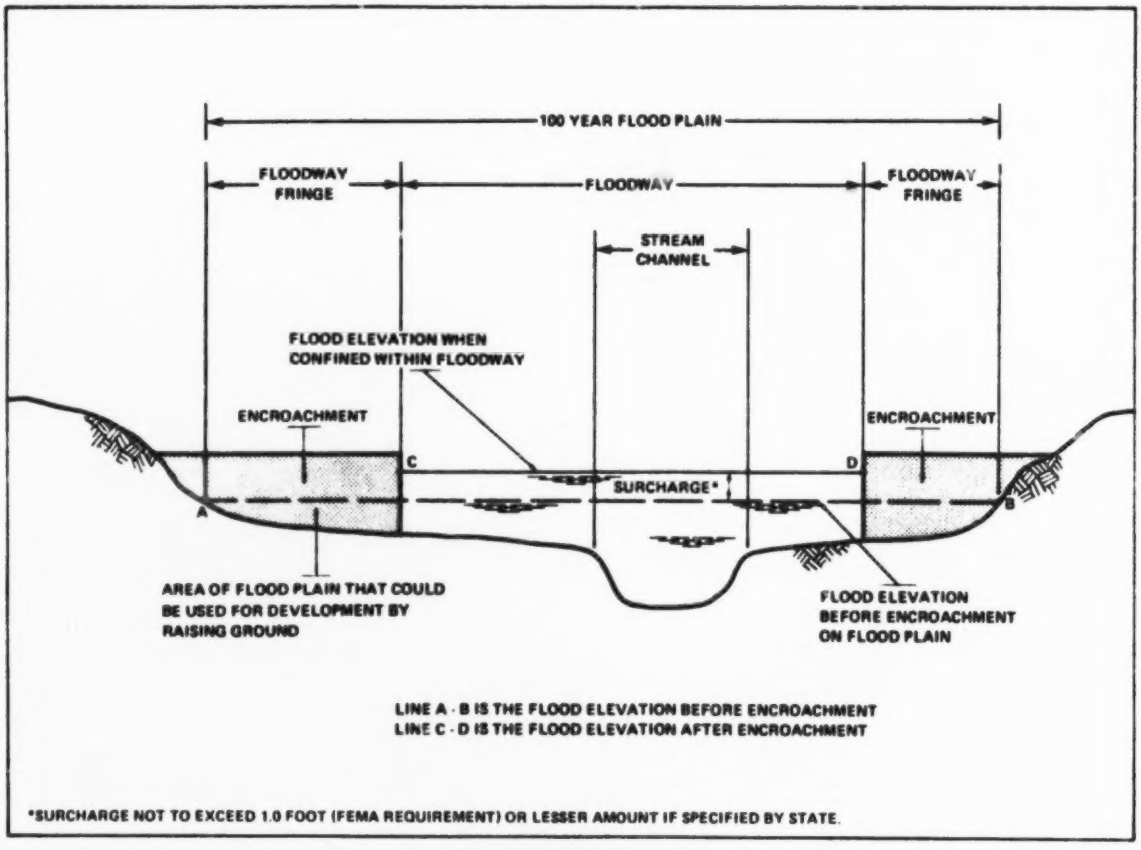
The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 5.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A - B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C - D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE.

FLOODWAY SCHEMATIC Figure 5

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each flooding source affecting the Town of Wilton.

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5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the flooding sources of the Town of Wilton are shown on the Flood Profiles (Exhibit 1) and are summarized in the Flood Insurance Zone Data Table (Table 3).

5.2 Flood Hazard Factors

The FHF is the FEMA device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the Town of Wilton was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A: Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHFs determined.

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FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Norwalk River							
Reach 1	07,08	-3.4	-1.1	+2.9	035	A7	Varies
Reach 2	06,08	-2.3	-0.7	+1.7	025	A5	Varies
Reach 3	06	-3.6	-2.5	+6.0	035	A7	Varies
Reach 4	02,04,06	-3.0	-1.0	+2.8	030	A6	Varies
Reach 5	02	-4.0	-1.2	+2.2	040	A8	Varies
Reach 6	02	-2.5	-0.8	+1.8	025	A5	Varies
Comstock Brook							
Reach 1	03,05,06	-1.5	-0.4	+1.1	015	A3	Varies
Reach 2	03	-2.3	-0.8	+1.8	025	A5	Varies
Reach 3	01,03	-1.0	-0.3	+0.7	010	A2	Varies
West Branch Saugatuck River							
Reach 1	08	-1.6	-0.5	+0.9	015	A3	Varies
Reach 2	06,08	-2.3	-1.0	+0.8	025	A5	Varies
Reach 3	06	-1.2	-0.5	+0.6	010	A2	Varies

[1]Flood Insurance Rate Map Panel
[2]Weighted Average
[3]Rounded to the nearest foot - see map

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOOD INSURANCE ZONE DATA

NORWALK RIVER, COMSTOCK BROOK, AND WEST BRANCH SAUGATUCK RIVER

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
East Branch Silvermine River Reach 1	01	-2.0	-0.6	+0.8	020	A4	Varies

[1]Flood Insurance Rate Map Panel
[2]Weighted Average
[3]Rounded to the nearest foot - see map

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

FLOOD INSURANCE ZONE DATA

EAST BRANCH SILVERMINE RIVER

BEST DOCUMENT AVAILABLE

Zones A2, A3, A4, A5, A6, A7, and A8:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; also, areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevations for the flooding sources studied in detail in the Town of Wilton.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Town of Wilton is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FEMA.

6.0 OTHER STUDIES

The results of this study differ from the results of the SCS report and the Norwalk River Encroachment Line Study (References 7 and 10). The differences are primarily due to the fact that the other studies assume all SCS dams will be in operation in the next five years, while this study does not. In addition, there are a number of areas, especially along State Route 7, where the flood plain has changed due to recent construction.

Flood Insurance Studies for the City of Norwalk and the Towns of Westport, Weston, and Ridgefield are currently being prepared (References 13, 14, 16 and 17). The results of those studies will be in exact agreement with the results of this study.

This study is authoritative for purposes of the Flood Insurance Program, and the data presented here either supersede or are compatible with previous determinations.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the office of the Insurance and Mitigation Division of the Federal Emergency Management Agency, Regional Director, Region I Office, J. W. McCormack Post Office and Courthouse Building, Room 462, Boston, Massachusetts 02109.

8.0 BIBLIOGRAPHY AND REFERENCES

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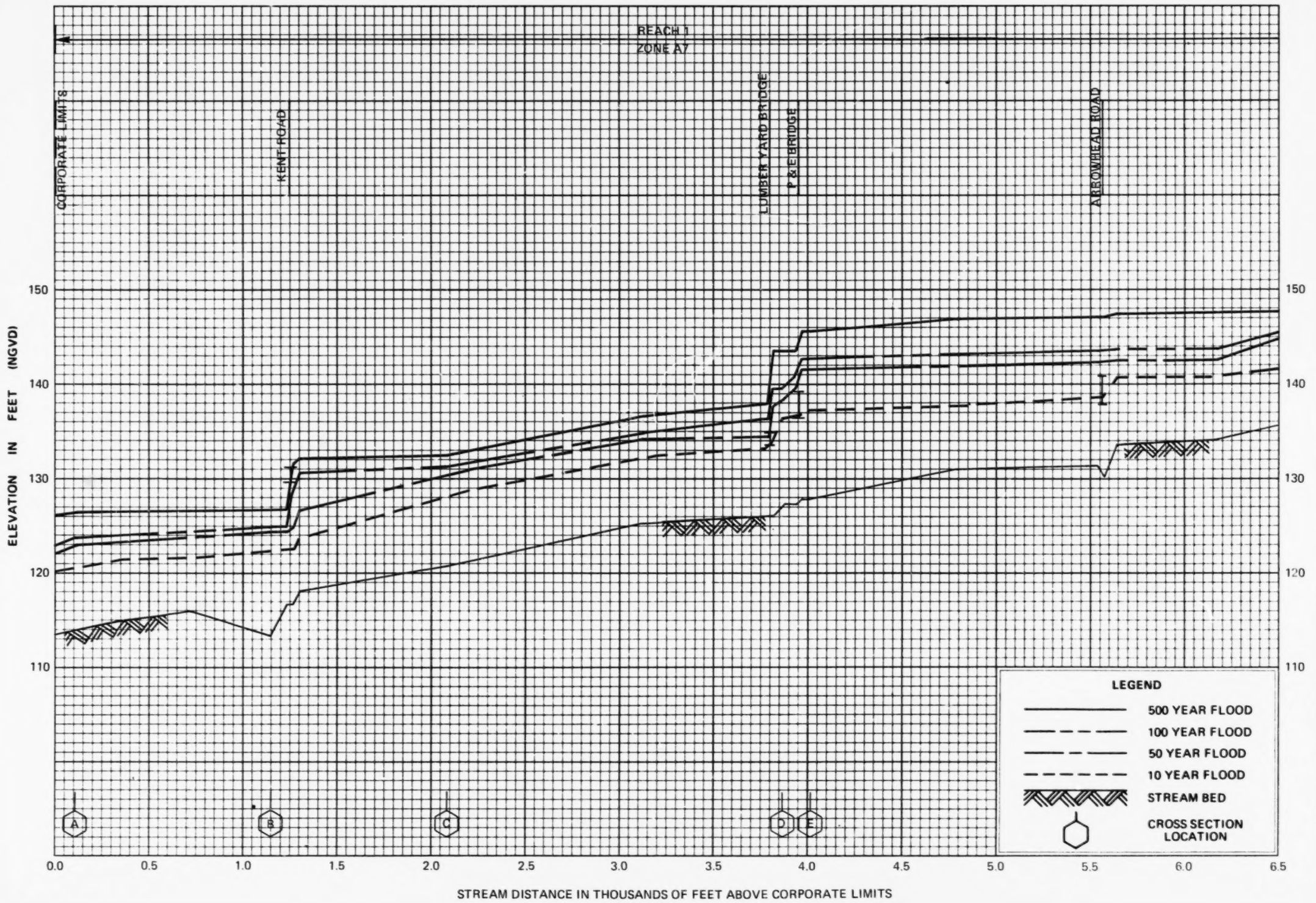

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

01P

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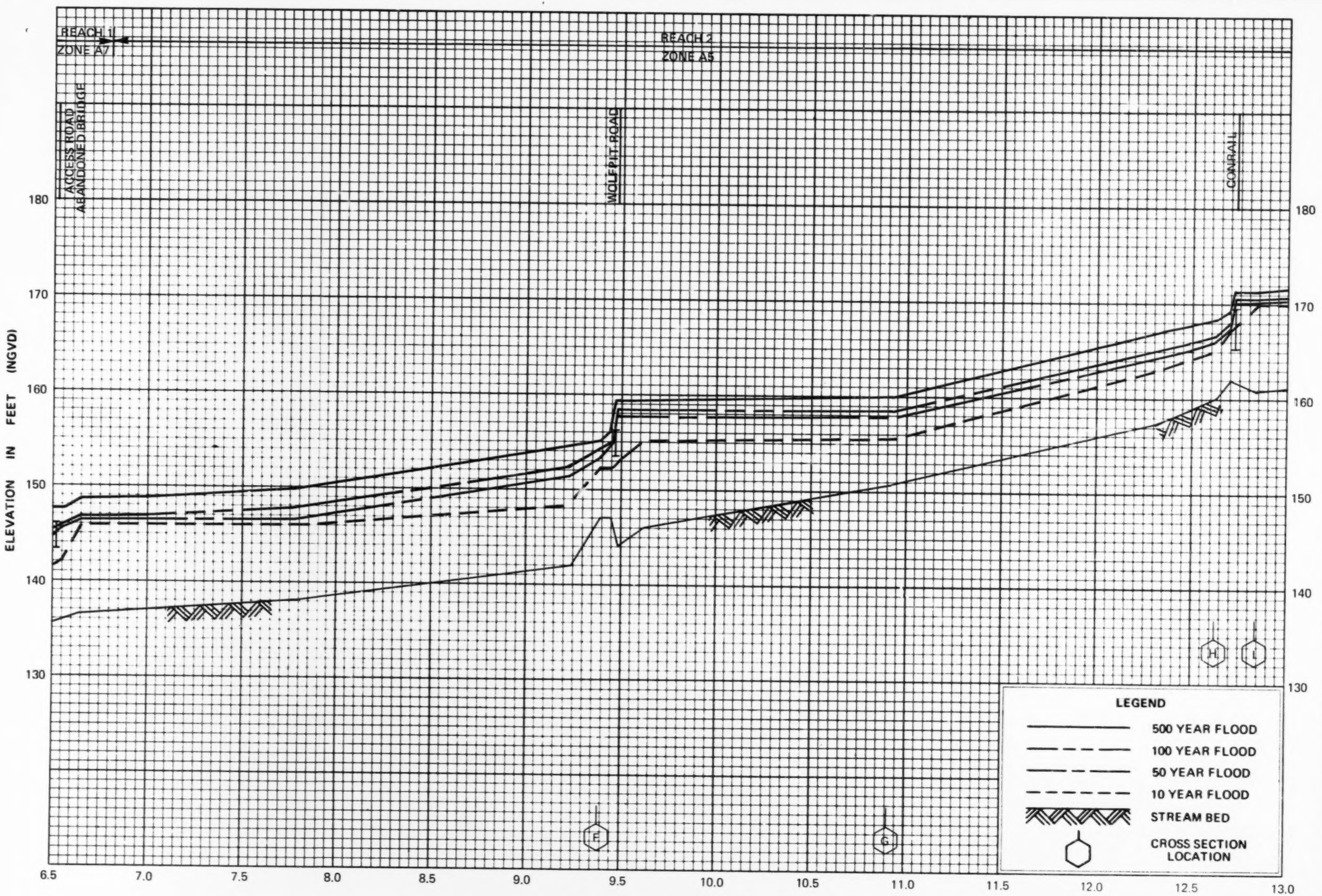

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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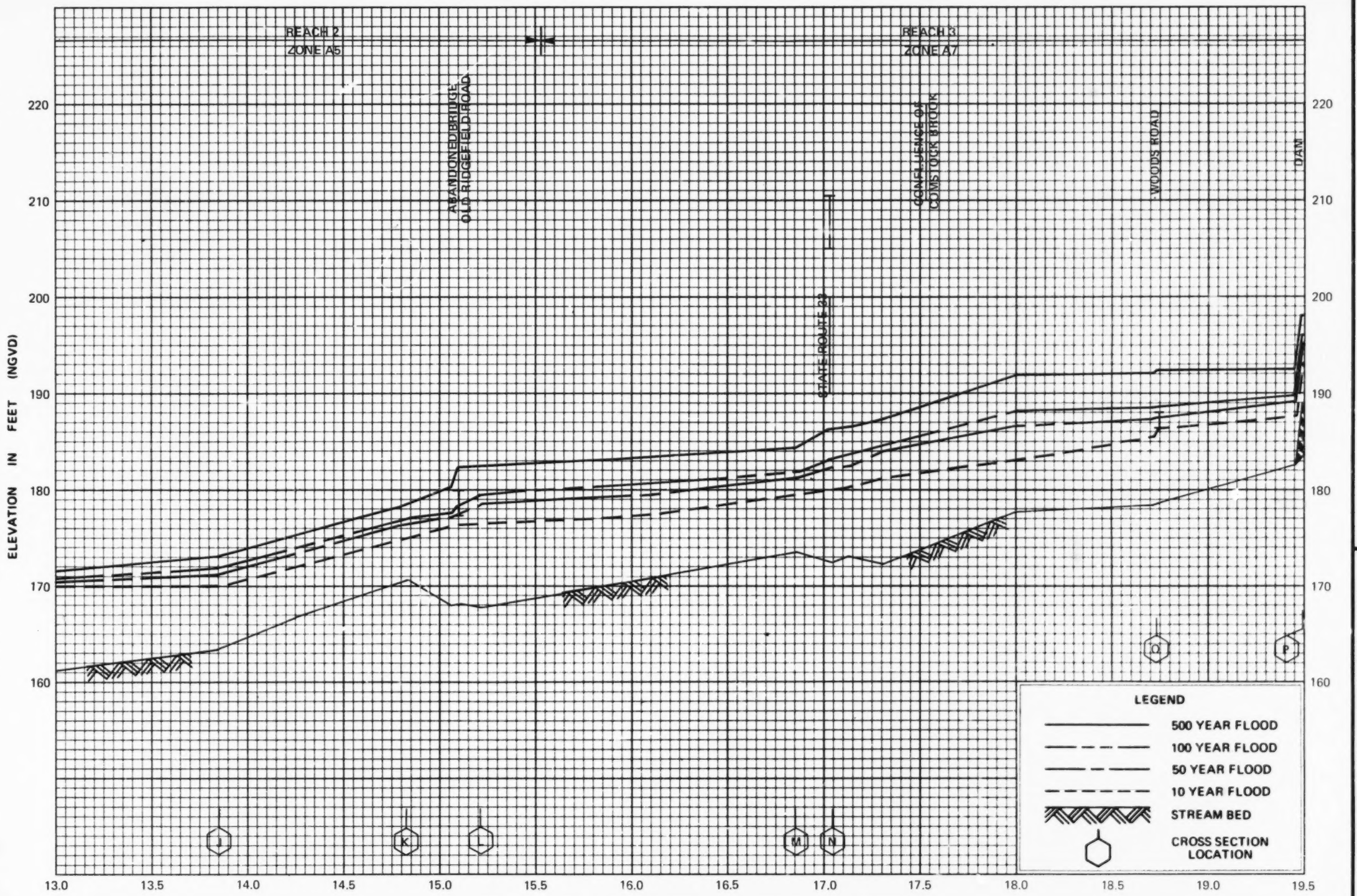

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

03P

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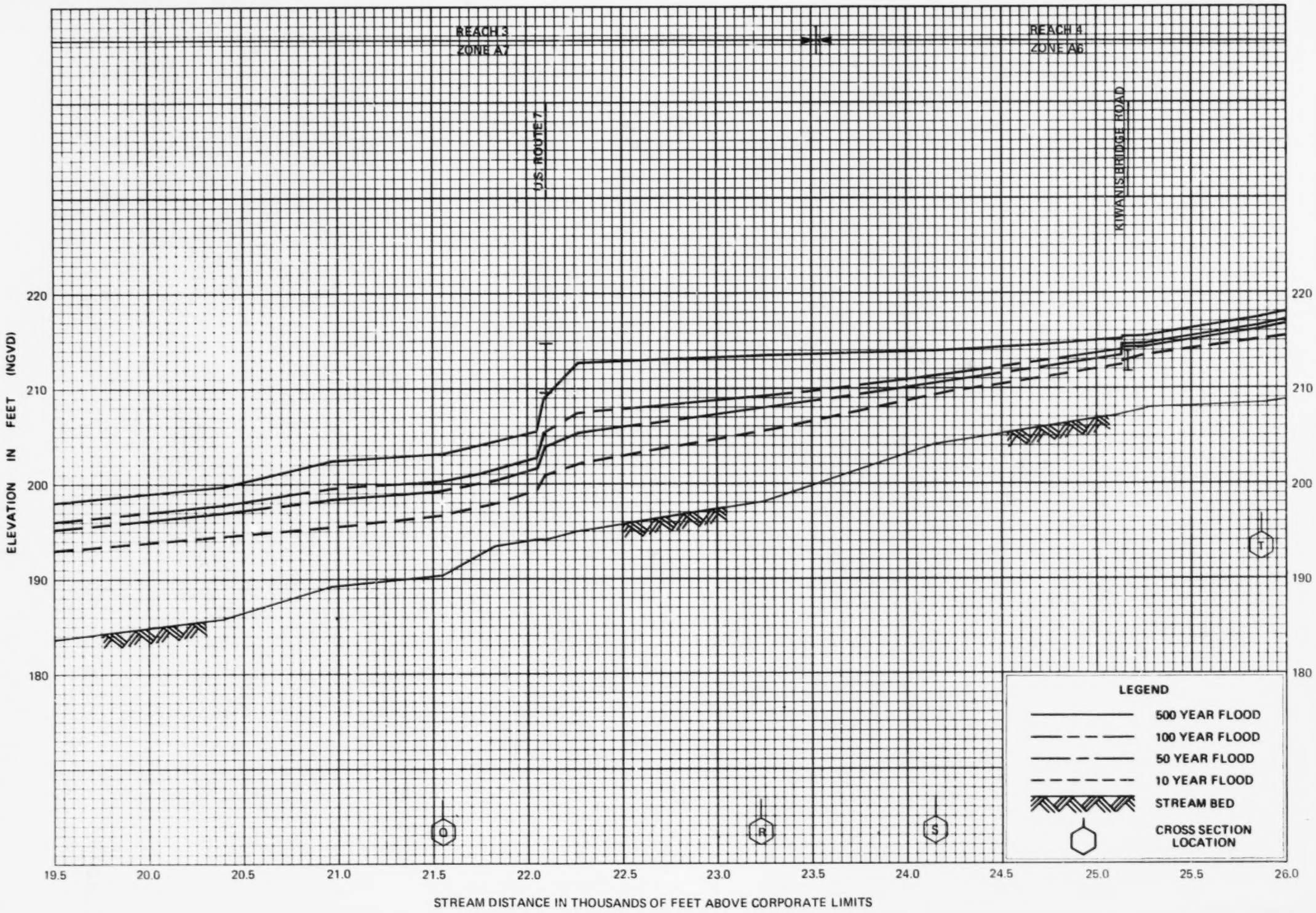

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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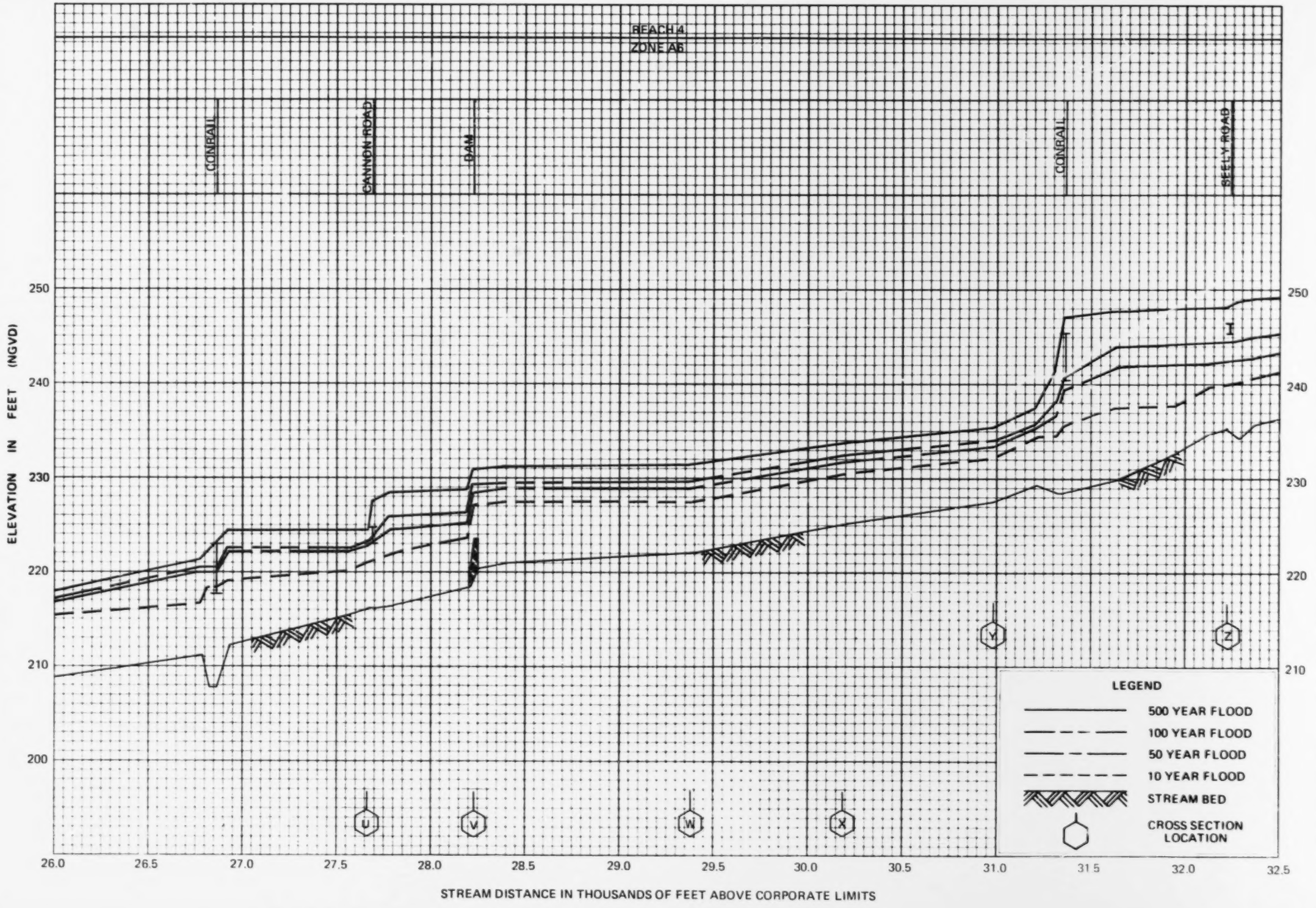

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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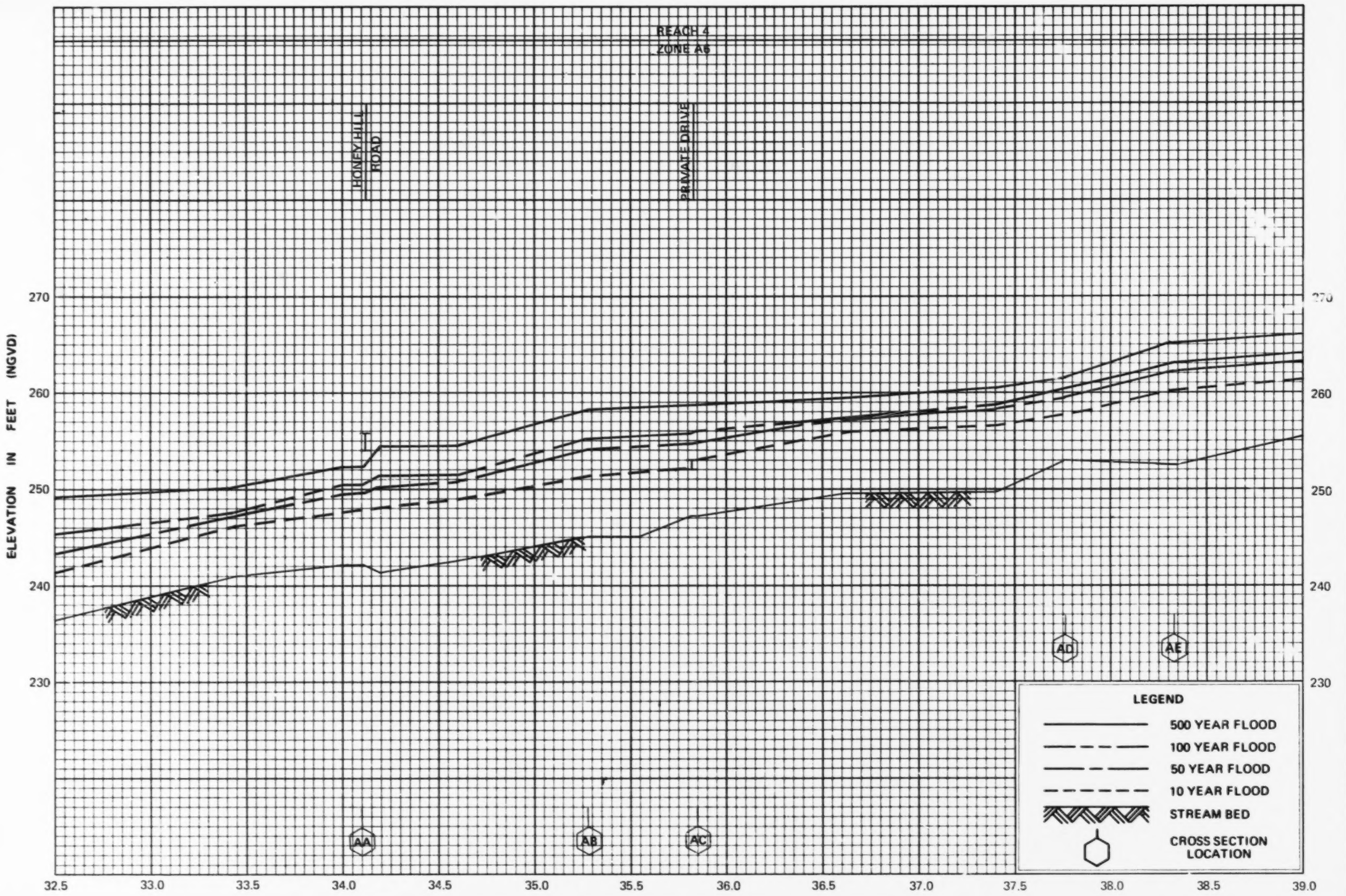

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

06P

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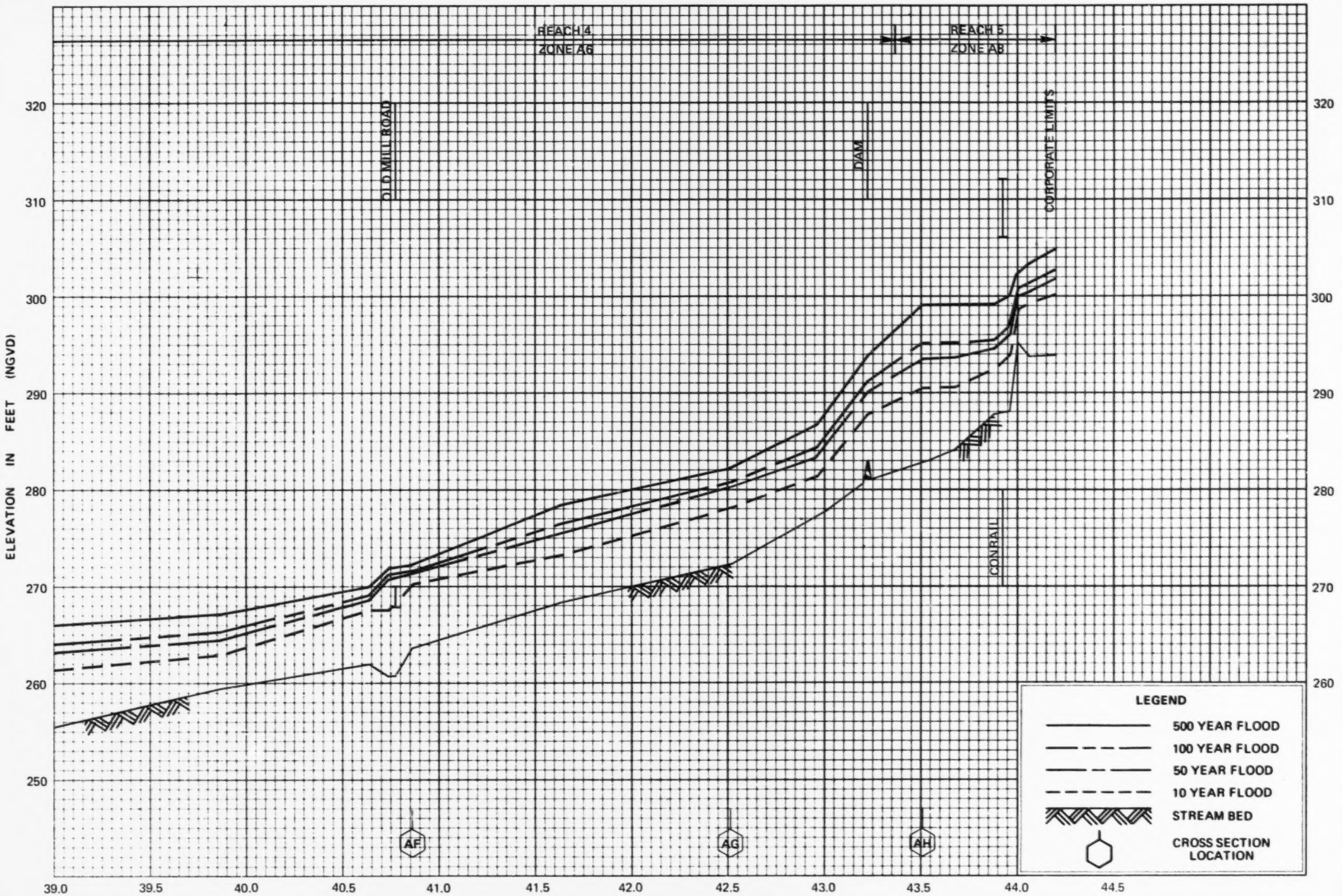

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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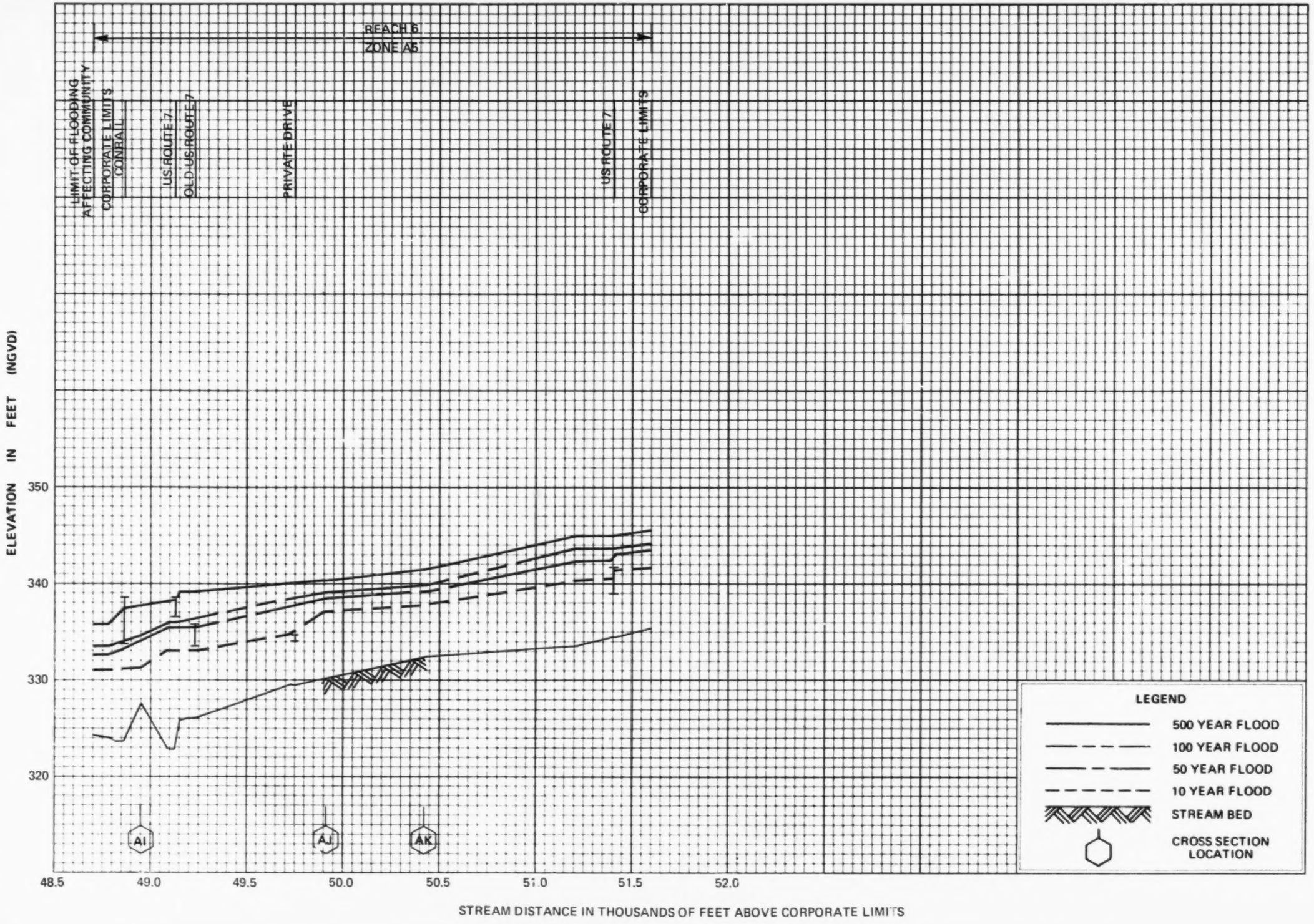

FLOOD PROFILES

NORWALK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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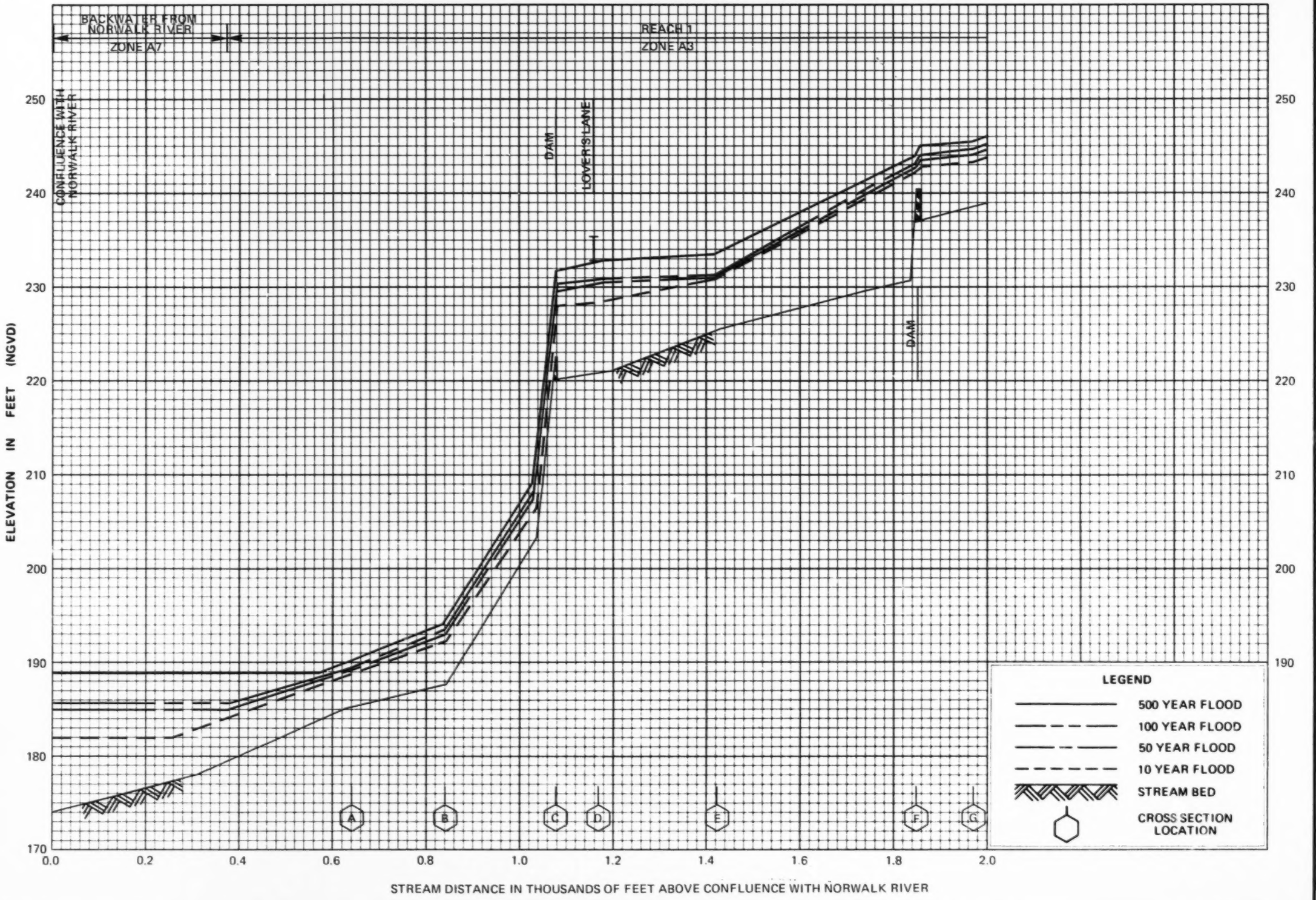

FLOOD PROFILES

COMSTOCK BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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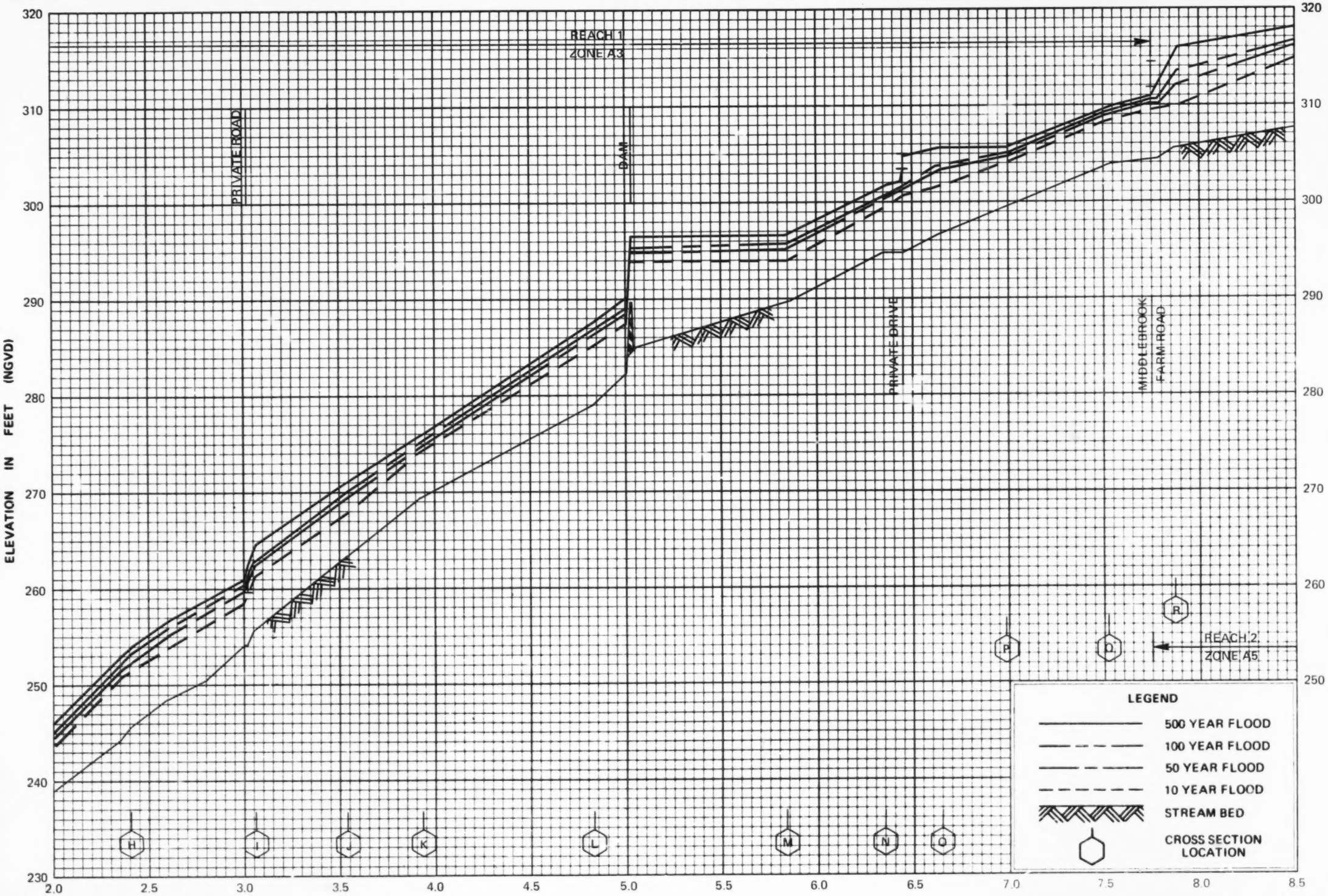

FLOOD PROFILES

COMSTOCK BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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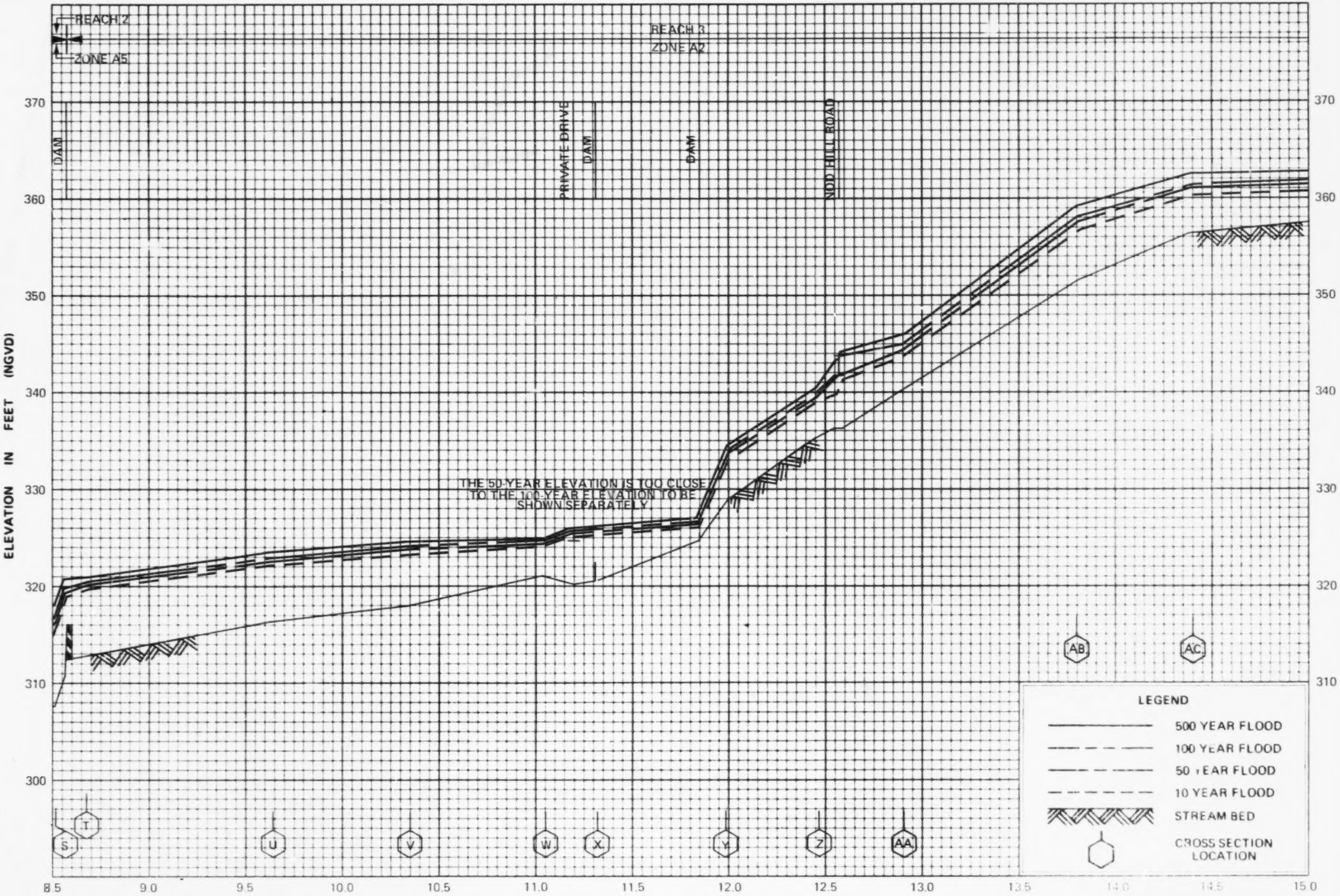

FLOOD PROFILES

COMSTOCK BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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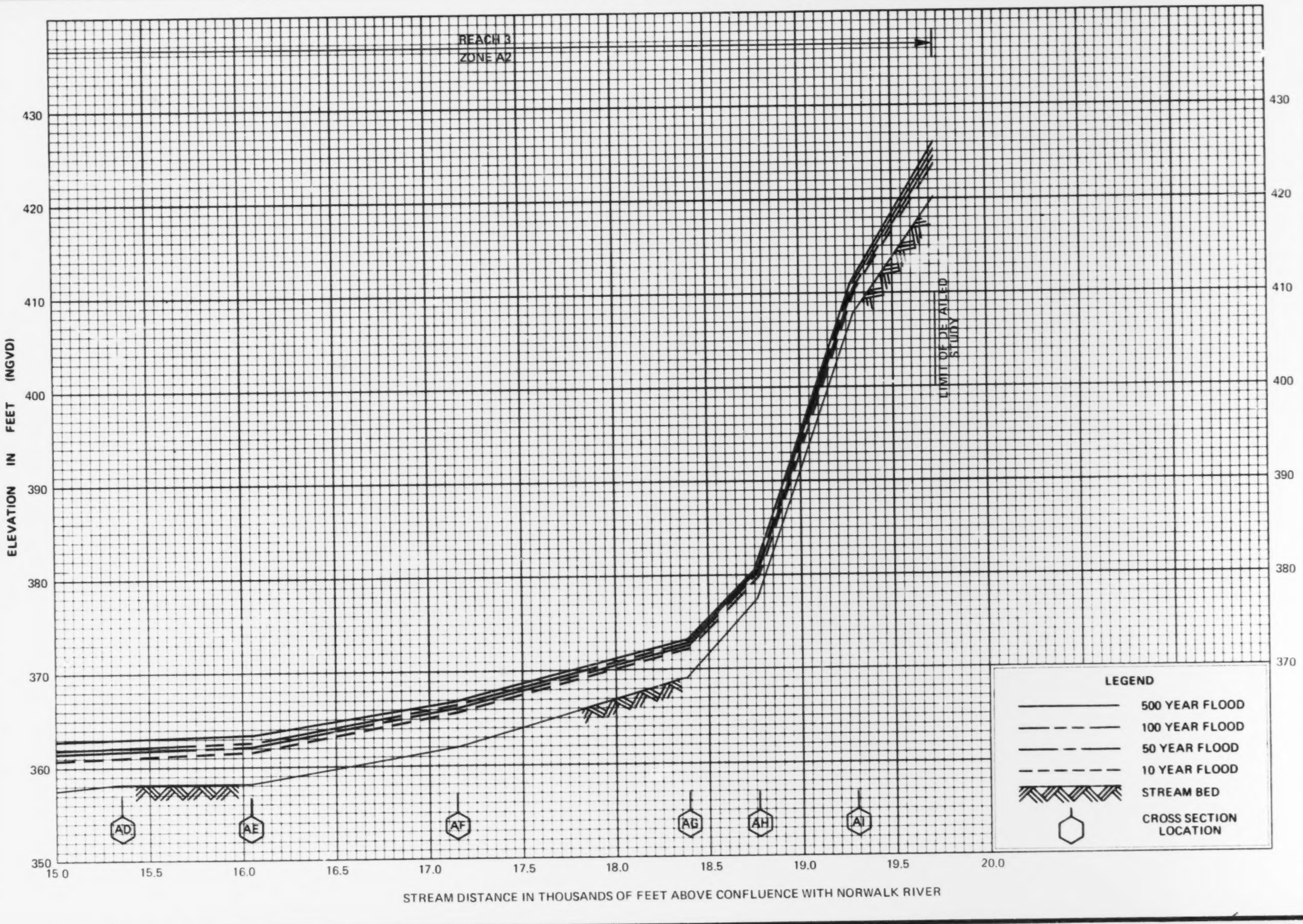

FLOOD PROFILES

COMSTOCK BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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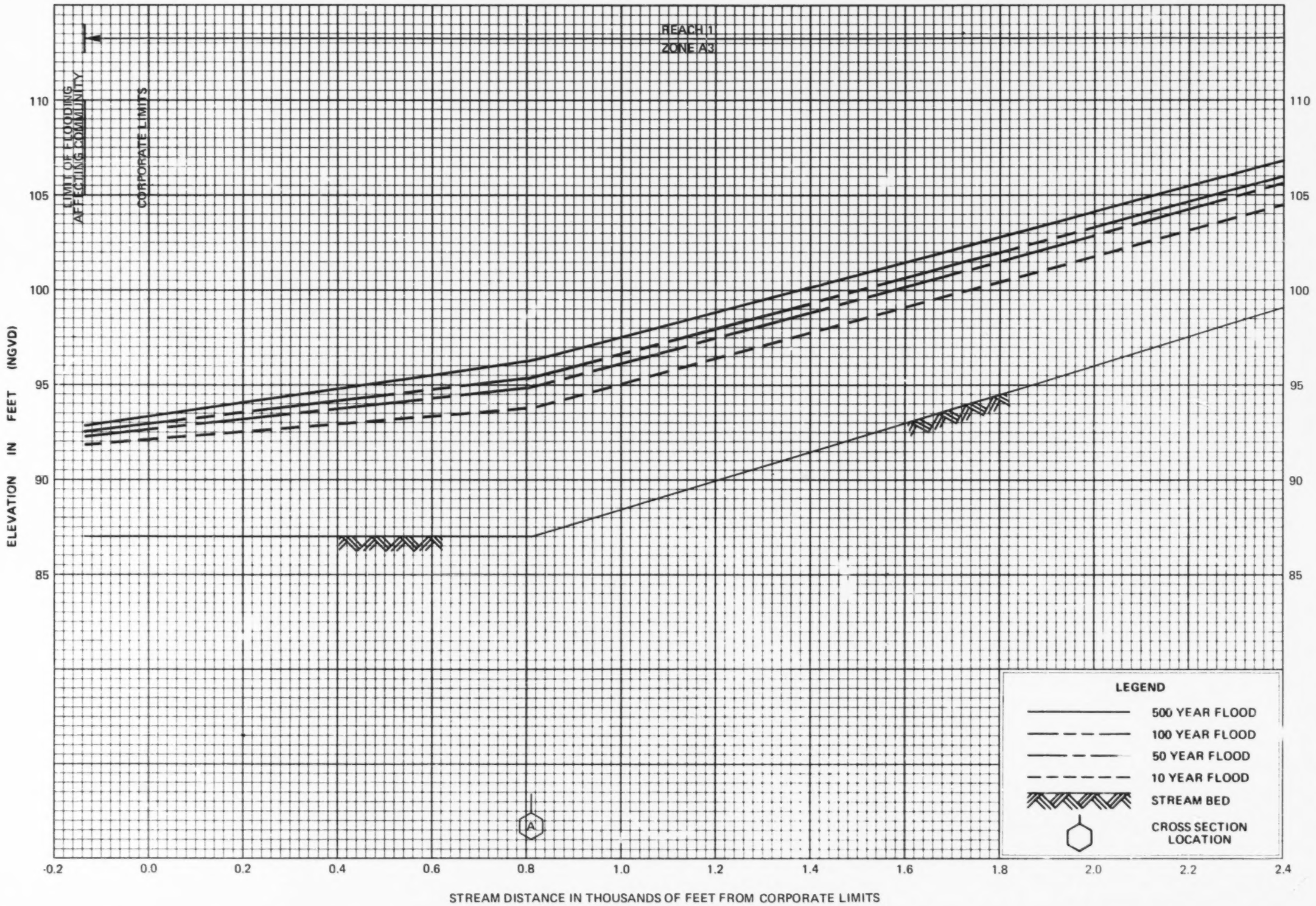

FLOOD PROFILES

WEST BRANCH SAUGATUCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

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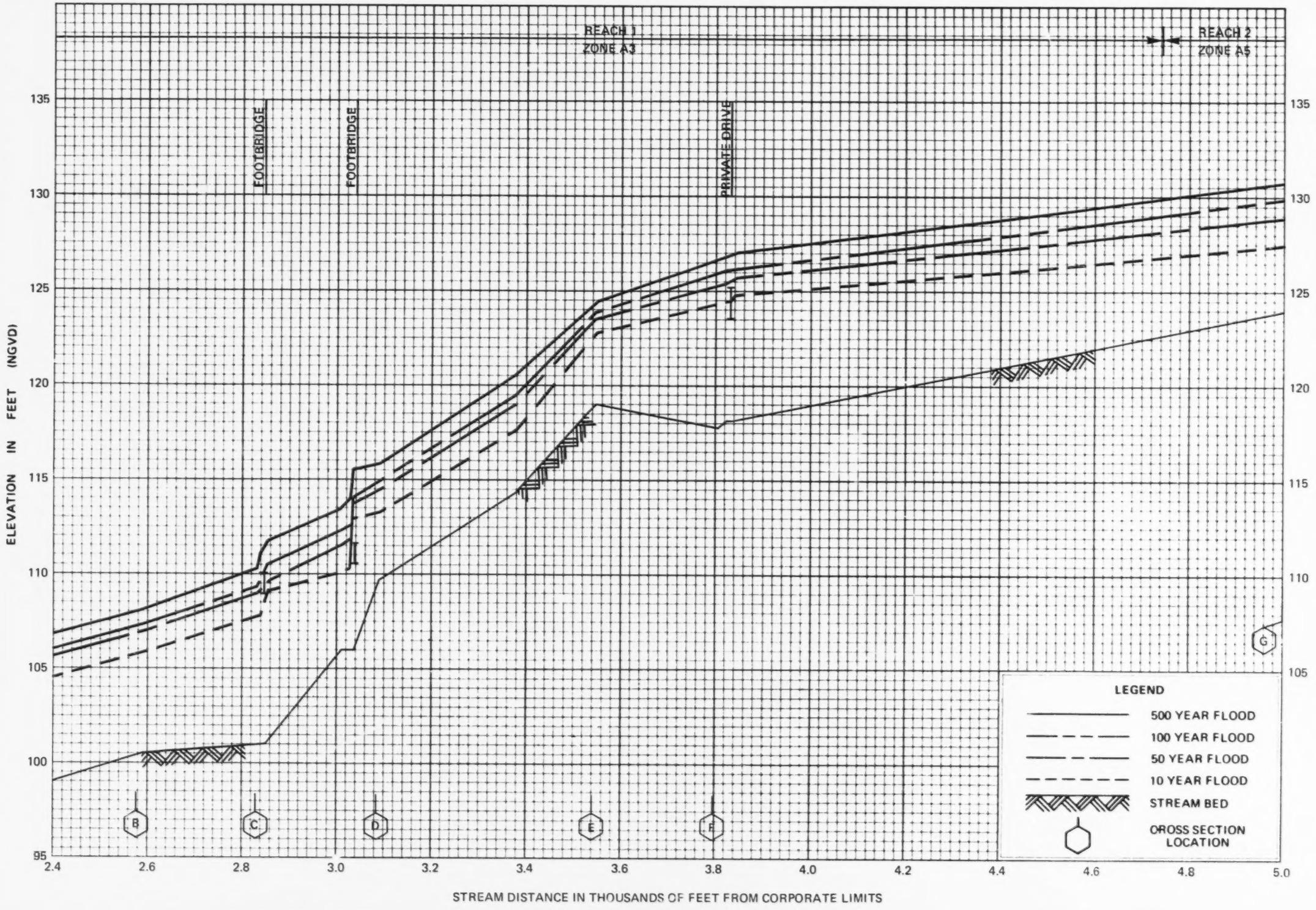

FLOOD PROFILES

WEST BRANCH SAUGATUCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

14P

BEST DOCUMENT AVAILABLE

REACH 2
ZONE A5

ABANDONED BRIDGE

CONCRETE BRIDGE

STONEBRIDGE ROAD

ELEVATION IN FEET (NGVD)

145
140
135
130
125
120

5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6

STREAM DISTANCE IN THOUSANDS OF FEET FROM CORPORATE LIMITS

G H I J

LEGEND

- 500 YEAR FLOOD
- 100 YEAR FLOOD
- 50 YEAR FLOOD
- 10 YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

WEST BRANCH SAUGATUCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

15P

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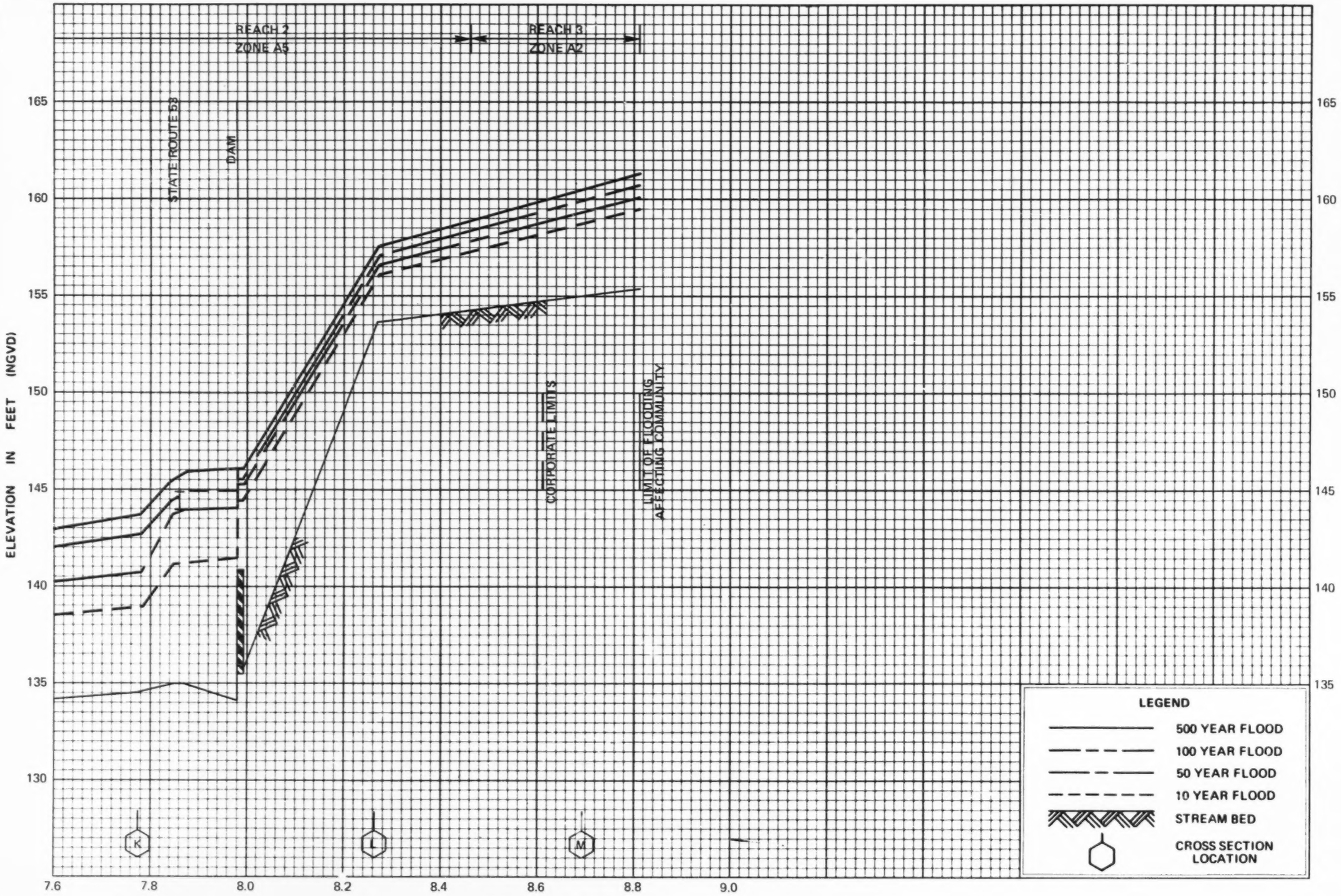

FLOOD PROFILES

WEST BRANCH SAUGATUCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

16P

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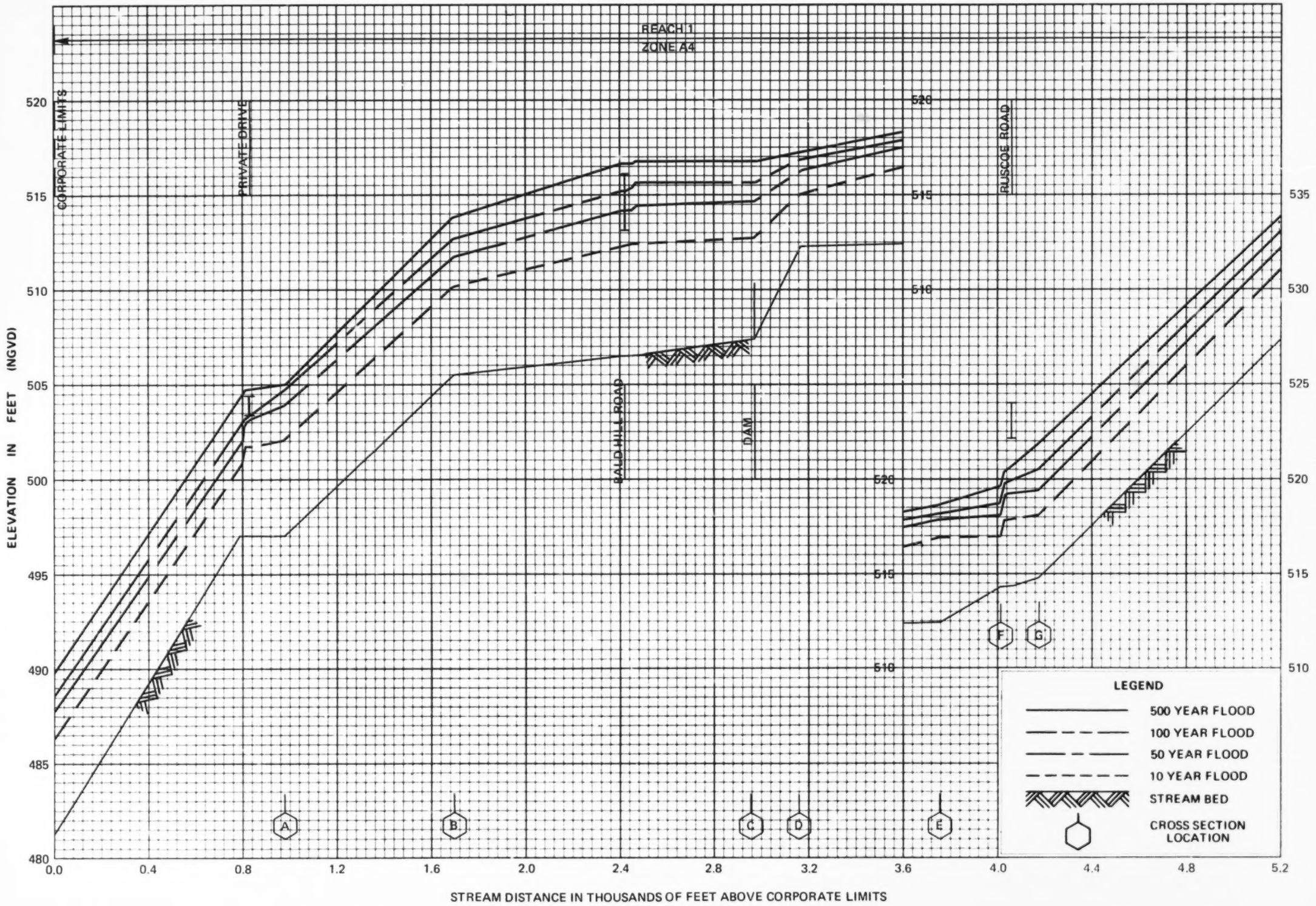


FLOOD PROFILES

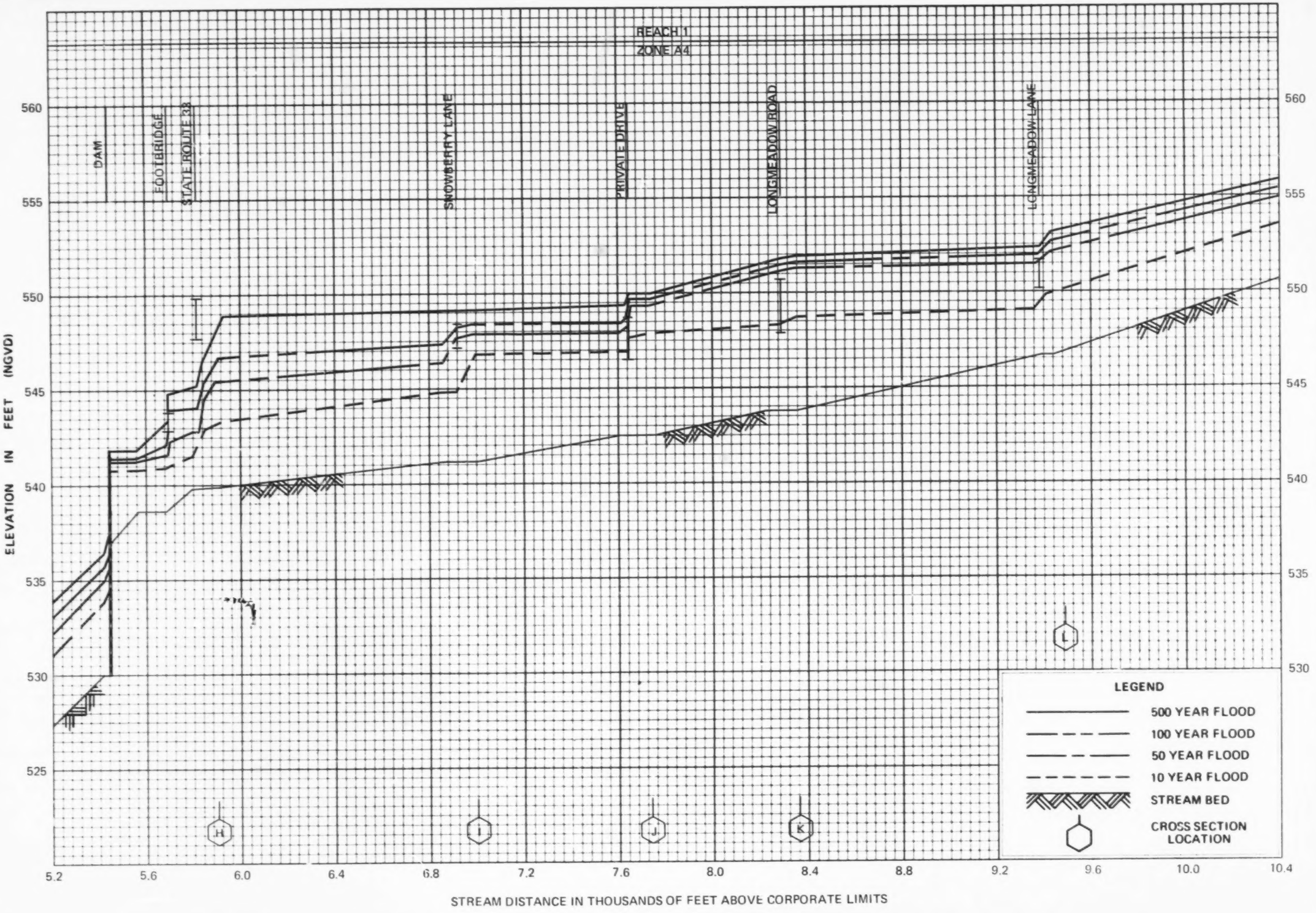
EAST BRANCH SILVERMINE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

17P

BEST DOCUMENT AVAILABLE



FLOOD PROFILES

EAST BRANCH SILVERMINE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

18P

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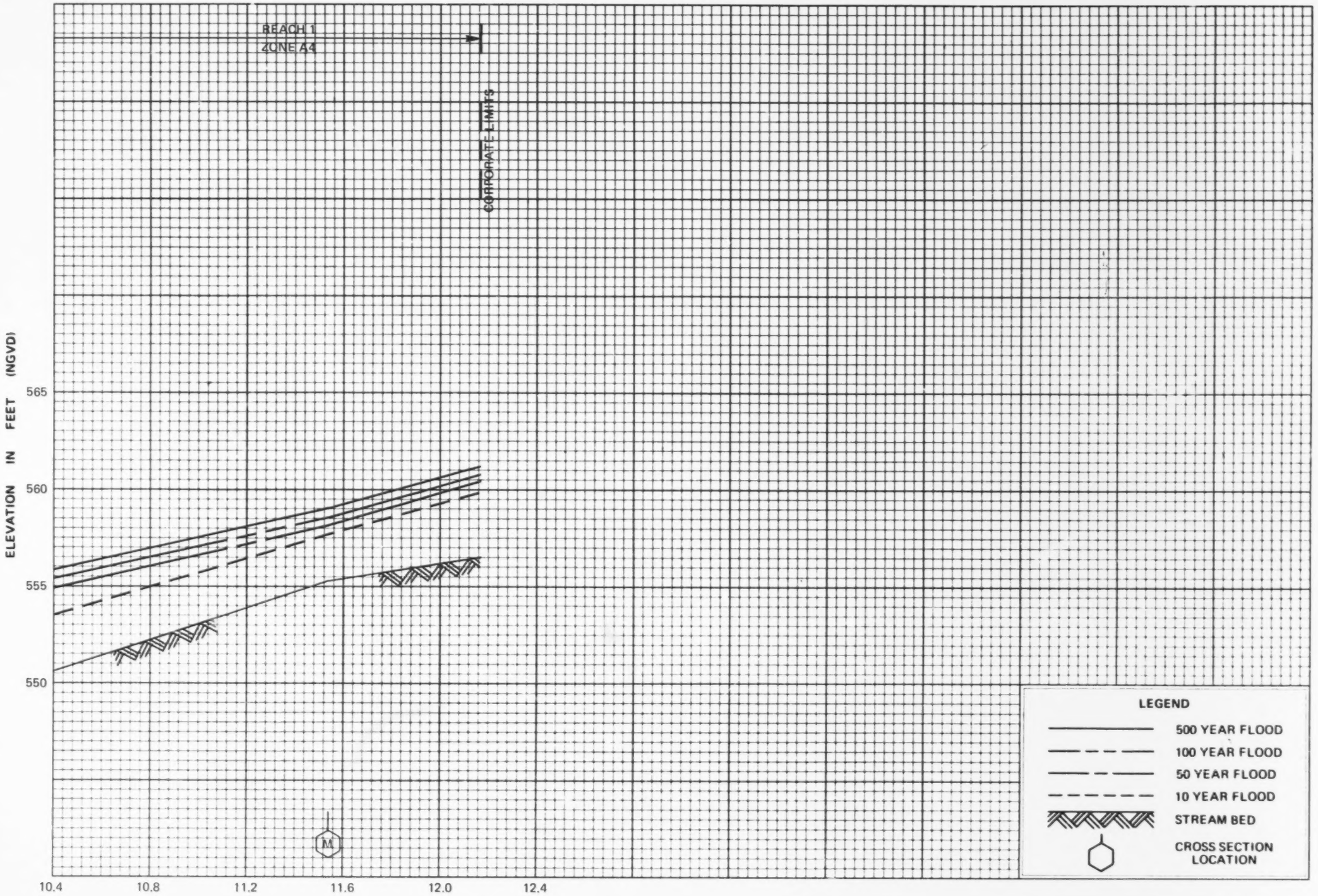

FLOOD PROFILES

EAST BRANCH SILVERMINE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF WILTON, CT
(FAIRFIELD CO.)

19P

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